



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

64

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/015,405	12/12/2001	Yukito Kawahara	S004-4492	4062
7590	08/15/2005		EXAMINER	
ADAMS & WILKS		PERUNGAVOOR, SATHYANARAYA V		
31st Floor		ART UNIT		PAPER NUMBER
50 Broadway		2625		
New York, NY 10004		DATE MAILED: 08/15/2005		

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/015,405	KAWAHARA, YUKITO
	Examiner Sath V. Perungavoor	Art Unit 2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 25 April 2005.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1,2,4-10 and 12-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1,2,4-10 and 12-14 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 25 April 2005 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____
2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date. _____	6) <input type="checkbox"/> Other: _____

## **DETAILED ACTION**

### ***Applicant(s) Response to Official Action***

[1] The response filed on April 25, 2005 has been entered and made of record.

### ***Response to Arguments***

[2] Applicant's arguments filed on April 25, 2005 have been fully considered but they are not persuasive. Examiner's response to the presented arguments follows below.

### **Objection to the Claims**

#### *Summary of Arguments:*

Applicant has submitted a corrected marked up copy and the applicant requests the withdrawal of the objection.

#### *Examiner's Response:*

Agreed. Examiner withdraws the previously made objection.

### **Claim Rejections - 35 USC § 112**

#### *Summary of Arguments:*

Applicant amends claim 7 to overcome the rejection. Applicant requests the withdrawal of the rejection.

#### *Examiner's Response:*

Agreed. Examiner withdraws the previously made rejection.

### **Claim Rejections - 35 USC § 103**

#### Summary of Arguments:

Regarding Claims 1 and 7: Applicant argues the following:

1. Functional equivalence type obviousness rejection in view of Kramer for the limitation, "length of the respective rows being more than ten times larger than a length of columns of the photoreceptors" is improper. Accordingly, applicant requests the withdrawal of the rejection.

#### Examiner's Response:

Examiner respectfully disagrees. Examiner would like to clarify on record that the rejection is a design choice type obviousness rejection. Hence, the applicant is required to provide evidence of criticality of the claimed limitations. Examiner contends that neither the specification nor the applicant's remarks to the non-final official action provide that evidence. In fact, the specification provides evidence to the contrary, where it shows no criticality to the claimed limitations. Following are excerpts from the specification that the Examiner uses as a basis for this assertion.

Following is from Page 5 Paragraph 1 of the specification as originally filed:

present invention shown in Fig. 1. Referring to Fig. 6, the equal magnification lens 4 has a length approximately equal to the finger width. The width of the readout section of the image sensor 5 is approximately the same as the length of the equal magnification lens 4, so that the image of the fingerprint is formed on an image pickup surface of the image sensor 5 via the equal magnification lens 4.

Following is from Page 5 Paragraph 2 of the specification as filed by a preliminary amendment:

~~photoreceptors linearly disposed thereon. In a preferred embodiment, a length of the respective rows is more than ten times larger than a length of columns of the photoreceptors.--~~

However, the specification is devoid of teachings of criticality (i.e. why do the lengths of the rows have to be ten times greater than the widths of the columns and why is that so critical.).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

[3] Claims 1, 2, 5-10, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujieda et al. (hereinafter "Fujieda") [US 6,011,860] in view of Kramer et al. (hereinafter "Kramer") [US 6,317,508].

Regarding claim 1, Fujieda discloses an apparatus for implementing readout of a fingerprint (Figure 3), comprising: a transparent upper base plate 23 having a contact surface that is touched during use by a fingertip of a person 27; a light source 24 for irradiating the contact surface with light such that a portion of the light is reflected when the fingertip touches the contact surface (column 5, line 19-28); an equal magnification lens 25 for forming an image of the person's fingerprint based on the reflected light with equal magnification (magnification ration of 1; column 6, line 5-10); an image sensor 26 having an image pickup surface comprised of a plurality of photoreceptors linearly disposed thereon for detecting the image of the fingerprint (column 6, line

5-16); a lower base plate (bottom of photo-shield case 21) for holding the image sensor in a fixed position relative to the equal magnification lens; and a housing 21 for holding the transparent base plate 23, the light source 24, the equal magnification lens 25, and the upper and lower base plates (Figure 3; column 5, line 29-40). Kramer discloses a scanning capacitive semiconductor fingerprint detector 11 including an array 13 of capacitive sensing elements having a first dimension (about one-half inch or 12.8 mm wide) greater than the width of a fingerprint, and a second dimension (about one-tenth inch or 2.5 mm wide) less than the length of a fingerprint (Figure 2; column 2, line 22-37).

However, Kramer does not expressly disclose that the width (length of the respective rows) is more than ten times larger than a length of columns of the photoreceptors.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to arrange a plurality of photoreceptors in rows having a length more than ten times larger than a length of columns of the photoreceptors. Applicant has not disclosed that arranging the photoreceptors in rows having a length more than ten times larger than a length of columns provides an advantage, is used for a particular purpose or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected applicant's invention to perform equally well with either the dimensions taught by Kramer or the claimed dimensions because both dimensions perform the same function of an image sensor that is wider than it is long. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to arrange a plurality of photoreceptors in rows having a length more than ten times larger than a length of columns of the photoreceptors as taught by Kramer in order to capture an image of a portion of a fingerprint and assemble the captured images into a fingerprint image as the fingerprint is moved over the array (column 2, line 1-4).

Regarding claim 7, Fujieda discloses a fingerprint detector (Figures 3 and 4) comprising; a housing 21; a transparent plate 23 disposed in the housing; a transparent plate 23 disposed in the housing 21 and having a contact surface 23a; a light source 24 disposed in the housing for irradiating the transparent plate with light such that a portion of the light is reflected when a fingertip 27 touches the contact surface of the transparent plate 23; an image sensor 26 disposed in the housing to receive the reflected light and having a plurality of linearly-arranged photosensors (column 6, line 5-16); and a lower base plate (bottom of photo-shield case 21) disposed in the housing for holding the image sensor (Figure 3; column 5, line 19-40). Kramer discloses a scanning capacitive semiconductor fingerprint detector 11 including an array 13 of capacitive sensing elements having a first dimension (about one-half inch or 12.8 mm wide) greater than the width of a fingerprint, and a second dimension (about one-tenth inch or 2.5 mm wide) less than the length of a fingerprint (Figure 2; column 2, line 22-37).

However, Kramer does not expressly disclose that the width (length of the respective rows) is more than ten times larger than a length of columns of the photoreceptors.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to arrange a plurality of photoreceptors in rows having a length more than ten times larger than a length of columns of the photoreceptors. Applicant has not disclosed that arranging the photoreceptors in rows having a length more than ten times larger than a length of columns provides an advantage, is used for a particular purpose or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected applicant's invention to perform equally well with either the dimensions taught by Kramer or the claimed dimensions because both dimensions perform the same function of an image sensor that is wider than it is long. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to arrange a

plurality of photoreceptors in rows having a length more than ten times larger than a length of columns of the photoreceptors as taught by Kramer in order to capture an image of a portion of a fingerprint and assemble the captured images into a fingerprint image as the fingerprint is moved over the array (column 2, line 1-4).

Regarding claims 2 and 10, Fujieda discloses that the angle of reflection of the reflected light L3 with respect to the fingertip 27 is larger than or approximately equal to the angle of incidence of the light L1 emitted by the light source 24 onto the contact surface of the transparent plate 23 (Figure 3; column 6, line 53-column 7, line 37).

Regarding claims 5 and 13, Fujieda discloses that the image sensor (image pickup device) 26 is formed of amorphous silicon (column 7, line 33-37).

Regarding claims 6 and 14, Fujieda discloses that the angle of incidence of the light L1 irradiated by the light source 24 onto the contact surface of the transparent plate 23 is smaller than or approximately equal to the angle of reflection of the reflected light L3 (Figure 3; column 6, line 53-column 7, line 37).

Regarding claim 8, Fujieda discloses a lens 25 for forming an image of the fingerprint based on the reflected light (column 5, line 19-28; column 6, line 5-10).

Regarding claim 9, Fujieda discloses that the lens 25 has an equal magnification (column 6, line 5-10).

[4] Claims 4 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujieda in view of Kramer as applied to claims 1 and 7 above, and further in view of Holehan [US 6,337,918].

Regarding claims 4 and 12, Fujieda discloses that the light source 24 is composed of LEDs (Figure 4, light-emitting diodes 24a/24b; column 5, line 56-column 6, line 4), but does not disclose that the light source is composed of LEDs of two or more colors. Holehan discloses a computer system with integrated touchpad/security subsystem including a touchpad having an infrared light source 20 and an infrared detector 24 mounted on a substrate (Figure 2; column 3, line 31-67), wherein it may be desirable to have each of the sources 20 emit a slightly different wavelength (color) or frequency of light (column 4, line 54-column 5, line 9). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use LEDs of two or more colors as a light source as taught by Holehan in order to separately identify energy emitted from each of the light sources and reflected from an object on the glass to aid in triangulating the position of the object (column 4, line 64-column 5, line 2).

***Conclusion***

[5] **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

### ***Contact Information***

[6] Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mr. Sath V. Perungavoor whose telephone number is (571) 272-7455. The examiner can normally be reached on Monday to Friday from 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Bhavesh M. Mehta whose telephone number is (571) 272-7453, can be reached on Monday to Friday from 9:00am to 5:00pm. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sath Perungavoor  
Sath V. Perungavoor  
Group Art Unit: 2625  
Telephone: (571) 272-7455  
Date: August 2, 2005

  
BHAVESH M. MEHTA  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600